Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for solving ~~packing and component layout~~ configuration problems given a set of objects of arbitrary geometry, a space, and a design objective, comprising:

performing a ~~pattern based~~ search on a computer using sets of moves to explore possible configurations of objects within a space, said search performed by successively generating a plurality of new object ~~component~~ configurations within said space by applying a plurality of object moves and evaluating a design objective ~~an objective function~~ at each of said plurality of new configurations until a final configuration is selected and output, and wherein a criterion other than the size of the move is used to determine the order in which the objects are moved within said space ~~moves are applied~~.

2. (currently amended) The method of claim 1 wherein the criterion for selecting the move to be applied is based on an amount of change in value of an ~~said~~ objective function incorporating said design objective, with that move expected to cause the greatest amount of change in value of the objective function being selected next .

3. (cancelled)

4. (currently amended) A method for solving ~~packing and component~~ configuration ~~layout~~ problems given a set of objects of arbitrary geometry, a space, and a design objective, comprising:

determining the effect of a plurality of moves on a set of objects ~~components~~;

organizing said plurality of moves into sensitivity groups according to the effect the moves have on said set of objects ~~components~~;

selecting a sensitivity group;

picking one move from said set of moves in said selected sensitivity group and applying said move to a saved configuration of objects within a space ~~components~~;

evaluating a new configuration resulting from applying said move, and if said new configuration improves a design objective ~~is improved~~, saving said new configuration, if said new configuration does not improve said design objective ~~is not improved~~, discarding said new configuration;

continuing until no moves from said set of moves from said selected sensitivity group result in an improvement in said design objective ~~improved configuration~~; and

determining if more sensitivity groups are available, and if no, outputting said saved configuration, and if yes, returning to said selecting a sensitivity group step.

5. (currently amended) The method of claim 4 wherein said determining the effect includes ranking each of said plurality of moves based on an amount of change each move is expected to have on an objective function incorporating said design objective and wherein said organizing includes ordering said moves from highest to lowest ranking.

6. (original) The method of claim 5 wherein said ranking includes one of analytically, probabilistically and heuristically ranking.

7. (previously presented) The method of claim 5 wherein said determining the effect additionally comprises dividing the range between highest and lowest rankings into a plurality of intervals, and wherein said organizing includes assigning each of the moves to one of said intervals.

8. (previously presented) The method of claim 7 wherein said assigning is performed according to one of a geometric progression based on said rankings and said rankings themselves.

9. (currently amended) The method of claim 4 wherein said determining the effect includes deriving a function that quantifies the effect each move has on the change in an objective function incorporating said design objective.

10. (previously presented) The method of claim 4 wherein said determining the effect includes determining the non-intersecting volume between an object and itself after applying a move.

11. (currently amended) A method for determining sensitivity for use in solving ~~packing and component~~ configuration ~~layout~~ problems given a set of objects of arbitrary geometry, a space, and a design objective, comprising:

ranking each of a plurality of moves on a set of objects within a space ~~components~~ based on the effect each move is expected to have on a design objective ~~an objective function~~; and

storing the ranking for use in ordering the moves within a computer program for performing a ~~pattern based~~ search in which sets of moves are used to generate a plurality of object configurations within said space, and wherein the moves are applied from those moves having the highest ranking to those moves having the lowest ranking.

12. (original) The method of claim 11 wherein said ranking includes one of analytically, probabilistically and heuristically ranking.

13. (original) The method of claim 11 additionally comprising dividing the range between the maximum and minimum rankings into a plurality of intervals, and assigning each of the moves to one of said intervals.

14. (previously presented) The method of claim 13 wherein said assigning is performed according to one of a geometric progression based on said rankings and said rankings themselves.

15. (original) The method of claim 11 wherein said ranking includes determining the non-intersecting volume between an object and itself after applying a move.

16. (currently amended) A method for determining sensitivity for use in solving ~~packing and component~~ configuration ~~layout~~ problems given a set of objects of arbitrary geometry, a space, and a design objective, comprising:

ranking each of a plurality of moves on a set of objects in a space ~~components~~ based on the effect each move is expected to have on a design objective ~~an objective function~~;

grouping said moves based on said ranking; and

storing said grouping for use in ordering the moves within a computer program for performing a ~~pattern based~~ search in which sets of moves are used to generate a plurality of object configurations within said space.

17. (original) The method of claim 16 wherein said ranking includes one of analytically, probabilistically and heuristically ranking.

18. (currently amended) The method of claim 16 wherein said grouping ~~clustering~~ includes dividing the range between the maximum and minimum rankings into a plurality of intervals, and assigning each of the moves to one of said intervals.

19. (previously presented) The method of claim 18 wherein said assigning is performed according to one of a geometric progression based on said rankings and said rankings themselves.

20. (original) The method of claim 16 wherein said ranking includes determining the non-intersecting volume between an object and itself after applying a move.

21. (currently amended) A preprocessing method for use in solving ~~packing and component~~ configuration ~~layout~~ problems given a set of objects of arbitrary geometry, a space, and a design objective, comprising:

deriving a function that relates object moves to expected changes in an objective function incorporating a design objective; and

storing said function for use in organizing the moves within a computer program for performing a ~~pattern based~~ search in which sets of moves are used to generate a plurality of object configurations within a space.

22. (original) The method of claim 21 wherein said deriving includes one of analytically, probabilistically and heuristically deriving.

23. (currently amended) A computer readable medium carrying an ordered set of instructions which, when executed, performs a ~~pattern based~~ search on a computer by successively generating a plurality of new object ~~component~~ configurations within a space by applying a plurality of object moves and evaluating a design objective ~~an objective function~~ at each of said plurality of new configurations until a final configuration is selected and output, and wherein a criterion other than the size of the move is used to determine the order in which the objects are moved within said space ~~moves are applied~~.

24. (currently amended) The device of claim 23 wherein the criterion for selecting the move to be applied is based on an amount of change in value of an ~~said~~ objective function incorporating said design objective, with the move expected to cause the greatest amount of change in value of the objective function being selected next.

25. (cancelled)

26. (previously presented) A computer readable medium carrying an ordered set of instructions which, when executed, perform a method comprising:

determining the effect of a plurality of moves on a set of objects ~~components~~;

organizing said plurality of moves into sensitivity groups according to the effect the moves have on said set of objects ~~components~~;

selecting a sensitivity group;

picking one move from said set of moves in said selected sensitivity group and applying said move to a saved configuration of objects within a space ~~components~~;

evaluating a new configuration resulting from applying said move, and if said new configuration improves a design objective ~~is improved~~, saving said new configuration, if said new configuration does not improve said design objective ~~is not improved~~, discarding said new configuration;

continuing until no moves from said set of moves from said selected sensitivity group result in an improvement in said design objective ~~improved configuration~~; and

determining if more sensitivity groups are available, and if no, outputting said saved configuration, and if yes, returning to said selecting a sensitivity group step.

27. (currently amended) The device of claim 26 wherein said determining the effect includes ranking each of said plurality of moves based on an amount of change each move is expected to have on an objective function incorporating said design objective and wherein said organizing includes ordering said moves from highest to lowest ranking.

28. (original) The device of claim 27 wherein said ranking includes one of analytically, probabilistically and heuristically ranking.

29. (previously presented) The device of claim 27 wherein said determining the effect additionally comprises dividing the range between highest and lowest rankings into a plurality of intervals, and wherein said organizing includes assigning each of the moves to one of said intervals.

30. (previously presented) The device of claim 29 wherein said assigning is performed according one of a geometric progression based on said rankings and said rankings themselves.

31. (currently amended) The device of claim 26 wherein said determining the effect includes deriving a function that quantifies the effect each move has on the change in an objective function incorporating said design objective.

32. (previously presented) The device of claim 26 wherein said determining the effect includes determining the non-intersecting volume between an object and itself after applying a move.

33. (currently amended) A computer readable medium carrying an ordered set of instructions which, when executed, perform a method comprising:

ranking each of a plurality of moves on a set of objects within a space ~~components~~ based on the effect each move is expected to have on a design criterion ~~an objective function~~; and

storing the ranking for use in ordering the moves within a computer program for performing a ~~pattern based~~ search in which sets of moves are used to generate a plurality of object configurations within said space, and wherein the moves are applied from those moves having the highest ranking to those moves having the lowest ranking.

34. (original) The device of claim 33 wherein said ranking includes one of analytically, probabilistically and heuristically ranking.

35. (original) The device of claim 33 additionally comprising dividing the range between the maximum and minimum rankings into a plurality of intervals, and assigning each of the moves to one of said intervals.

36. (previously presented) The device of claim 35 wherein said assigning is performed according to one of a geometric progression based on said rankings and said rankings themselves.

37. (original) The device of claim 33 wherein said ranking includes determining the non-intersecting volume between an object and itself after applying a move.

38. (currently amended) A computer readable medium carrying an ordered set of instructions which, when executed, perform a method comprising:

ranking each of a plurality of moves on a set of objects in a space ~~components~~ based on the effect each move is expected to have on a design objective ~~an objective function~~;

grouping said moves based on said ranking; and

storing said grouping for use in ordering the moves within a computer program for performing a ~~pattern based~~ search in which sets of moves are used to generate a plurality of object configurations within said space.

39. (original) The device of claim 38 wherein said ranking includes one of analytically, probabilistically and heuristically ranking.

40. (currently amended) The device of claim 38 wherein said grouping ~~clustering~~ includes dividing the range between the maximum and minimum rankings into a plurality of intervals, and assigning each of the moves to one of said intervals.

41. (previously presented) The device of claim 40 wherein said assigning is performed according to one of a geometric progression based on said rankings and said rankings themselves.

42. (original) The device of claim 38 wherein said ranking includes determining the non-intersecting volume between an object and itself after applying a move.

43. (currently amended) A computer readable medium carrying an ordered set of instructions which, when executed, perform a preprocessing method comprising:

deriving a function that relates object moves to expected changes in an objective function incorporating a design objective; and

storing said function for use in organizing the moves within a computer program for performing a ~~pattern based~~ search in which sets of moves are used to generate a plurality of object configurations within a space.

44. (original) The method of claim 43 wherein said deriving includes one of analytically, probabilistically and heuristically deriving.